

DIRECT TESTIMONY OF
DANIEL F. KASSIS, P.E.
ON BEHALF OF
DOMINION ENERGY SOUTH CAROLINA, INC.
DOCKET NO. 2019-393-E

1 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND**
2 **OCCUPATION.**

3 A. My name is Daniel (“Danny”) F. Kassis. My business address is 2392 West
4 Aviation Avenue, North Charleston, South Carolina 29406. As Vice President of
5 Customer Relations and Renewables, my responsibilities include developing
6 Dominion Energy South Carolina, Inc.’s (“DESC”) strategy for deploying and
7 utilizing renewable assets consistent with state policy in the most efficient and
8 beneficial manner to DESC’s customers. I am also responsible for negotiating and
9 approving renewable energy contracts for DESC. I have the approval authority for
10 DESC and have signed all of the contracts for DESC under the Distributed Energy
11 Resources Act, as well as numerous renewable resource power purchase
12 agreements.

13
14 **Q. BRIEFLY STATE YOUR EDUCATION, BACKGROUND, AND**
15 **EXPERIENCE.**

1 A. In 1984, while still a student, I began working for DESC, then South Carolina
2 Electric & Gas Company (“SCE&G”), as an Engineering Student Assistant.¹ In
3 1986, I received a Bachelor of Science degree in Mechanical Engineering from
4 Clemson University, and I am licensed in South Carolina as a Professional
5 Engineer. Upon graduation, I began working at the Charleston Naval Shipyard in
6 the navy’s nuclear submarine program. In 1987, I rejoined SCE&G and served in
7 various roles in the Gas Department, eventually becoming the Manager of the
8 Charleston Division. In 1998, I was named as the District Manager for the Electric
9 Department in the Charleston District. In 2004, I was promoted to the position of
10 General Manager of Electric Service Coordination. In this position, I coordinated
11 all of the areas that supported the retail electric operations for SCE&G. In 2013, I
12 was promoted to the position of Vice President of Customer Service, and I became
13 the Vice President of Customer Relations and Renewables in 2014 with the addition
14 of renewable energy programs and energy efficiency programs under my
15 responsibility.

16
17 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PUBLIC SERVICE**
18 **COMMISSION OF SOUTH CAROLINA (“COMMISSION”)?**

19 A. Yes, I previously appeared before the Commission and testified in Docket No.
20 2019-184-E, DESC’s avoided cost docket.

¹ In April of 2019, SCE&G changed its name to DESC.

1

2 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

3 A. The purpose of my direct testimony is to generally explain DESC's
4 obligation to provide a tariff (the "Tariff")—which DESC filed in this docket on
5 December 30, 2019—pursuant to the Settlement Agreement (the "Settlement
6 Agreement") between DESC and South Carolina Solar Business Alliance, Inc.²
7 The Tariff was filed pursuant to Section 3(A)(ii) of the Settlement Agreement,
8 which requires DESC to file with the Commission avoided cost rates for energy
9 and capacity procured from qualifying facilities under the Public Utility Regulatory
10 Policies Act of 1978 ("PURPA") (each, a "QF") that utilize either (i) "storage as a
11 separate resource" or (ii) "dispatchable renewable generating facilities such as solar
12 + storage." As such, I will introduce the Tariff and discuss certain of its eligibility
13 requirements, along with avenues available to implement battery storage for
14 facilities that are ineligible for the Tariff.

15

16 **Q. DOES S.C. ACT NO. 62 OF 2019 ("ACT 62") SUPERSEDE THE**
17 **REQUIREMENTS OF THE SETTLEMENT AGREEMENT RELATED TO**
18 **THE TARIFF?**

19 A. No. The terms of the Settlement Agreement, and the requirements imposed
20 on the Tariff under the Settlement Agreement, remain binding upon DESC. Indeed,

² The Settlement Agreement was filed with the Commission in Docket No. 2017-370-E.

1 Section 14 of Act 62 expressly addresses this issue, and mandates that Act 62 “not
2 be interpreted to supersede the conditions of any settlement entered into by an
3 electrical utility and filed with the [C]ommission prior to the adoption of [Act 62].”
4

5 **Q. BRIEFLY EXPLAIN THE TARIFF, WHICH IS ATTACHED AS EXHIBIT**
6 **NO. ____ (DFK-1).**

7 A. The Tariff is available to the first 100 MW of battery storage QFs (each, a
8 “Storage QF”) that satisfy the eligibility requirements of the Tariff. For example,
9 the Storage QF must receive 100% of its electric input directly from one renewable
10 generation facility that is also a QF (each, a “Generating QF”). However, the Tariff
11 is not available to battery storage facilities that intend to pair with a generating
12 facility that executed a power purchase agreement prior to the enactment of the
13 Tariff. Additionally, the Storage QF must agree that it will charge and discharge in
14 accordance with dispatch signals from DESC. The Storage QF must also be capable
15 of delivering its nameplate discharge capacity for at least four consecutive hours.
16 DESC Witness Hanzlik’s testimony and DESC Witness Bell’s testimony describe
17 some of the Tariff’s specifications in greater detail, but DESC designed the
18 parameters and rate structure of the Tariff to ensure that the value paid to such
19 Storage QFs accurately reflects the resulting benefit to DESC’s customers.
20

1 **Q. PLEASE EXPLAIN THE RELATIONSHIP BETWEEN GENERATION**
2 **AND STORAGE UNDER THE TARIFF.**

3 A. To qualify as a QF under PURPA, a generating facility must be 80 MW or
4 less, with a primary energy source that is renewable. Therefore, in order for a
5 battery storage facility to qualify as a QF under PURPA, the generation placed into
6 the storage facility must derive from a renewable energy fuel source. For that
7 reason, the Tariff requires the Storage QF to (i) be directly connected to the
8 Generating QF via an internal power line and (ii) as described above, receive 100%
9 of its electrical input directly from the Generating QF. A battery which takes
10 electrical power from a utility's system would not be eligible for this Tariff because
11 it would not meet the renewable fuel source requirement in order to qualify as a QF
12 under PURPA.

13
14 **Q. PLEASE EXPLAIN WHY THE DISCHARGE CAPACITY OF THE**
15 **STORAGE QF MUST BE AT LEAST 5 MW-AC AND NO GREATER THAN**
16 **25% OF THE POWER PRODUCTION CAPACITY OF THE GENERATING**
17 **QF.**

18 A. The specifics of each project—including the size, technology, and
19 configuration—all affect (i) how these projects will be operated and (ii) the resulting
20 benefits realized from these facilities. Therefore, in order to provide stated, fixed
21 rates, the projects must be within established parameters. PURPA provides a key

1 parameter—that is, the combined capacity capability of the Generating QF and
2 Storage QF cannot exceed 80 MW-AC. However, even with that requirement,
3 projects can still be configured in a variety of ways under that 80 MW-AC limit.

4 For example, a 5 MW Storage QF may require different utilization than a 40
5 MW Storage QF in order to be fully optimized. As such, providing stated, fixed
6 rates applicable to every facility that is eligible for the Tariff is particularly
7 challenging given the number of variables. However, the parameters of the Tariff—
8 including the capacity limits mentioned above—help mitigate exposure to DESC's
9 customers by ensuring that the stated rates are a reasonable forecast of the value
10 provided to DESC's customers.

11
12 **Q. WHY IS THE TARIFF LIMITED TO THE FIRST 100 MW-AC**
13 **AGGREGATE TOTAL NAMEPLATE CAPACITY OF STORAGE QFS?**

14 A. This 100 MW-AC storage limit ensures that the stated rates remain a
15 reasonable forecast, as described above. Although the rates remain a reasonable
16 forecast for the first 100 MW-AC of storage, DESC will have to update its stated
17 rates at each subsequent 100 MW-AC tranche due to the impacts that increased
18 battery storage will have on DESC's system. DESC Witness Bell addresses this in
19 more detail in his testimony, but DESC believes this tranche-style approach strikes
20 an appropriate balance of establishing a program to implement battery storage while

1 protecting DESC's customers by ensuring that costs are reasonably commensurate
2 with benefits.

3
4 **Q. PLEASE EXPLAIN HOW THE TARIFF SEEKS TO "OPTIMIZE" THE**
5 **USE AND BENEFIT OF STORAGE QFS.**

6 A. As the Commission considers what it means to "optimize the asset" under
7 the Tariff, it must consider optimization from both the perspective of the facility
8 owner and DESC's customers. For the facility owner, optimizing the storage asset
9 typically means generating the most revenue for the owner. However, optimization
10 for DESC's customers first means siting the Storage QF to produce the most benefit
11 to the system as a whole as opposed to co-locating it with a particular Generating
12 QF. It also means utilizing the Storage QF to maintain reliability and mitigate the
13 negative impacts of variable generation on DESC's system, all in the most cost-
14 effective manner.

15 As such, DESC designed the Tariff to optimize Storage QFs from the
16 perspective of the owner and DESC's customers. To address the owner's interest
17 of maximizing revenue, DESC designed rates that pay the Storage QF for the ability
18 to store MWs and time-shift energy delivery. DESC Witness Bell's testimony
19 addresses these rates and their mechanics in greater detail. In effect, however,
20 DESC assumed that the storage asset would be operated in a way that creates a high
21 level of optimization for the asset. Although most facility owners would find it

1 challenging to optimize these assets at that level, DESC, as described in greater
2 detail in DESC Witness Hanzlik's testimony, would be able to extract such
3 optimization from these assets by providing dispatch signals. In turn, this
4 optimization assumption resulted in higher rates paid to facility owners.

5 Essentially, the Tariff removes risk from Storage QFs and compensates the
6 Storage QF as if the facility is dispatching in a highly-optimized manner—an
7 optimization level that likely can only be achieved by the Storage QF complying
8 with DESC's dispatch signals. Thus, DESC must be allowed to signal the dispatch
9 (charge and discharge) of these facilities in order to realize the value reflected in the
10 Tariff's rates. As DESC Witness Hanzlik's testimony describes in greater detail,
11 DESC's vast experience dispatching its fleet to meet load and reliability
12 requirements in real-time makes DESC the only party able to optimize these Storage
13 QFs as integrated system assets—thus, ensuring DESC does not overpay for these
14 assets and optimizing the assets for DESC's customers and the owner of the Storage
15 QF.

16
17 **Q. IF DESC WERE UNABLE TO SIGNAL THE DISPATCH OF THE**
18 **STORAGE QFS, WOULD THE RATE STRUCTURE UNDER THE TARIFF**
19 **REMAIN THE SAME?**

20 **A.** No. As discussed above, the rate structure guarantees the facility owner a
21 revenue stream based on a high optimization rate, but this value is derived from

DESC's ability to provide dispatch signals. If Storage QFs do not agree to follow these dispatch signals, the rate structure would necessarily require revision to reflect the decrease in the resulting benefit to DESC's customers.

Q. WILL FACILITIES THAT DO NOT MEET THE REQUIREMENTS OF THE TARIFF BE PROHIBITED FROM IMPLEMENTING BATTERY STORAGE?

A. No. DESC continues to permit those facilities to negotiate bilateral contracts with DESC. However, for the facilities that do not fit within the stated parameters of the Tariff, DESC will have to model each proposal individually to achieve optimization on DESC's system given the complexity and unit-specific characteristics of each project. To do that, the developers of such projects must provide sufficient details to DESC about the proposed storage facility so that it can be modelled appropriately.

Q. WHY IS A QF WITH AN EXISTING POWER PURCHASE AGREEMENT ("PPA") INELIGIBLE FOR THE TARIFF?

A. It would be impractical and against the best interest of DESC's customers to open the Tariff to QFs operating under existing PPAs. For example, if the Tariff were available to QFs operating under existing PPAs, a QF could incorporate energy storage to add capacity and shift energy to increase the amount and value of power

1 put to DESC. This is problematic because many of the avoided cost rates under
2 existing PPAs are stale and are higher than DESC's current avoided costs. As such,
3 by limiting the Tariff to Generating QFs operating under new PPAs with more
4 accurate avoided cost rates, DESC ensures that this risk of overpayment is
5 mitigated. Again, DESC will negotiate in good faith with existing QFs seeking to
6 add battery storage, even though such QFs are ineligible for the Tariff. However,
7 those negotiations will occur on a case-by-case basis and account for the specifics
8 of each project.

9
10 **Q. WILL STORAGE QFS INTERCONNECT JUST LIKE GENERATING**
11 **QFS?**

12 A. Yes. Both will follow the South Carolina Generator Interconnection
13 Procedures, Forms, and Agreements (the "SCGIP"). All costs associated with the
14 interconnection will be administered under the SCGIP.

15
16 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

17 A. Yes.

Exhibit No. (DFK-1)

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RATE PR – QUALIFYING FACILITY STORAGE

FOR BATTERY STORAGE THAT MEETS THE REQUIREMENTS
FOR A QUALIFYING FACILITY UNDER THE PURPA AND S.C.

ACT NO. 62 OF 2019

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AVAILABILITY

Available to any entity ("Seller") that enters into a power purchase agreement (the "PPA") with Dominion Energy South Carolina, Inc. (the "Company") for any battery storage unit that is a Qualifying Facility ("QF") as defined by the Federal Energy Regulatory Commission ("FERC") Order No. 70 under Docket No. RM 79-54 (the "Storage QF"), where such Storage QF directly receives input of electric energy from a renewable generation facility that is a QF (the "Generating QF"); provided, however, that the discharge capacity of the Storage QF must be at least 5 MW-AC and no greater than 25% of the power production capacity in MW-AC of the Generating QF.

No QF shall be eligible for this schedule if the power production capacity of such QF, when combined with the power production capacity of all other QFs (i) located within one mile, (ii) using the same generating resource, and (iii) under common ownership, would exceed 80 MW-AC.

This schedule shall be not be available to a Storage QF that intends to pair with a Generating QF that has an executed PPA, the term of which has not expired.

CHARACTER OF SERVICE

The Storage QF must:

1. Be directly connected to the Generating QF via an internal power line (i.e., power may not be transmitted from the Generating QF to the Storage QF via an external distribution line);
2. Receive 100% of its electric input directly from the Generating QF;
3. Not provide all or any portion of its capacity for sale or consumption by anyone, including the Generating QF, other than the Company;
4. Implement and maintain communication equipment that will allow the Company to control the operation (e.g., charges and discharges) of the Storage QF in compliance with the Company's specifications;
5. Have the ability to maintain its nameplate discharge capacity and, when fully charged, to deliver its nameplate discharge capacity for at least four (4) consecutive hours less any degradation agreed upon in the PPA where such degradation rate is consistent with industry standards;
6. Be capable of 365 charge and discharge cycles in each calendar year over the term of the PPA;
7. Supply energy at 60 hertz and voltage, with a phase and power factor approved by the Company; and
8. Supply energy at a voltage level compatible with the voltage level of the Company's system at the point of delivery.

MONTHLY RATES FOR GENERATION WITH STORAGE PPA CONTRACTS ONLY

- I. Energy and Capacity Delivered to the Company's System

For all energy and capacity delivered to the Company's system, the Company will pay a rate set forth in the PPA with such rate to be determined by the Company's applicable Rate PR – Avoided Cost Methodology for such Generating QFs.

- II. Storage

The Company will pay the Storage QF at a rate equal to the Storage QF Capacity Rate plus the Storage QF Energy-Shifting Rate (the "Storage QF Fixed Payment Rate").

- i. Storage QF Capacity Rate: \$5.56/kW-AC-month
- ii. Storage QF Energy-Shifting Rate: \$1.56/kW-AC-month

These rates for Storage QFs are available on a first come, first serve basis until the aggregate total nameplate capacity of the Storage QFs with executed PPAs exceeds 100 MW-AC.

III. Seller Charge

Seller shall pay the following Seller Charge each monthly billing period: \$45.00.

BILLING MONTH

A "Billing Month" is defined in this schedule as the time period between successive meter readings for the purpose of monthly billing. Readings are taken approximately once each month.

MONTHLY RATE DETERMINATION

The Company will be liable to the Seller each Billing Month for a fixed amount determined as the product of the Storage QF Fixed Payment Rate times the total applicable kW-AC discharge capacity of the Storage QF.

The Company will also be liable to the Seller each Billing Month for an amount determined as the sum of (1) the product of the total kWh delivered to the Company's system times the per kWh rate for energy delivered to the Company's system and (2) the product of the total kWh delivered to the Company's system in those hours eligible for a capacity payment times the per kWh rate for capacity delivered to the Company's system.

The Seller will be liable to the Company each Billing Month for the Seller Charge regardless of the amount of energy delivered by the Seller to the Company.

PAYMENT TERMS

Payment terms will be described in the PPA.

SPECIAL PROVISIONS

The configuration of the Storage QF shall be subject to the Company's approval, and the Company shall have the right to inspect the Storage QF prior to operation.

The PPA shall contain provisions related to the Company's right to operate the Storage QF, which may include requiring the Storage QF to implement the Company's operating instructions (e.g., charges and discharges), provided that such instructions are within the operating limits of the Storage QF.

The Storage QF shall request interconnection service and take such service pursuant to South Carolina Generator Interconnection Procedures, Forms, and Agreement. The Storage QF and Generating QF may submit a single application for interconnection service.

LIMITING PROVISIONS

Company shall not be liable for purchase of electricity from a Storage QF or Generating QF pursuant to this schedule until Seller and Company have executed a PPA for the Storage QF and Generating QF.

Power discharged from the Storage QF may not be used to satisfy contractual requirements of the Generating QF such as performance requirements or power quality.

Exhibit No. __ (DFK-1)

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Non-intermittent Generating QFs must have interconnection service sufficient to simultaneously accommodate the combined power production capacity of the Generating QF and the Storage QF.

TERM OF CONTRACT

The term of the PPA shall be for no more than ten (10) years.

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